

Counterdrug Technology

Advanced Systems to Help Law Enforcement and Medical Science in the Struggle Against Drug Crime and Abuse

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By Land or By Sea or By Air: Busting Bulk Shipments

Following a CTAC assessment of system efficacy, the U.S. Customs Service is purchasing 40 Vehicle and Cargo Inspection Systems (VACIS) for deployment at U.S. ports of entry for nonintrusive imaging of sea going containers, trucks, and other vehicles that may contain narcotics, explosives, or weapons. VACIS units—which use low-dose Gamma rays to detect and define anomalies—have been essential to successful investigations by Customs and other agencies resulting in major seizures of narcotics and arrests that damaged the operations of some narcotrafficking organizations. CTAC has also sponsored the development and testing of the railroad version of the system.

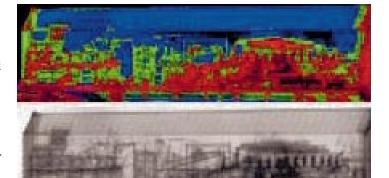
Meanwhile, CTAC is supporting the research of two teams of scientists in different parts of the country who are closing in on what may well become next-generation, highly effective, nonintrusive inspection technologies that could further impair the drug cartels' use of U.S. ports of entry.

Under development: Western Kentucky University's Neutron Probe is easily transportable and designed to rapidly determine whether sealed sacks are the legal goods their shippers' manifests describe. The system detects and analyzes electronic signatures unique to specific substances and therefore should be able to differentiate between bags of legal chemicals and grains and illegal drugs hidden in the same bags.

At the Massachusetts Institute of Technology, other CTAC-sponsored scientists are developing CAFNA, the Coded Aperture Fast Neutron Analysis system. The goal of this research is to develop a system that not only detects anomalies inside any cargo container but also reports the nature of the contents to the law enforcement officer operating the system. CAFNA, like the Neutron Probe, uses advanced signal processing to determine the elemental composition of the contents of the container under suspicion. These projects are very promising, but until rigorous field testing is completed, we will not know if the systems will ever be tactically deployed.



VACIS scans truck.



VACIS detects contraband.

RIGHT: Three nonintrusive inspection applications of the Vehicle and Cargo Inspection System, currently being deployed at U.S. ports of entry: fixed position for trucks and tankers, portable for vehicles, and rail site to inspect trains.

BELOW: At an M.I.T. nuclear engineering lab in Boston, CTAC-sponsored scientists working to develop CAFNA, a neutron interrogation technique which they hope will be the next generation of nonintrusive technology, met with Dr. Brandenstein during a quarterly review of the project.







